Remarks

This responds to the Office action mailed October 6, 2005. In its Office Action, the Office rejects the claims under Section 112 on the basis of its assertion that the original disclosure does not support the inclusion of the terms "fatty amides" and "oxidant" in claims 18-26 and 32-40.

Applicants respectfully request withdrawal of the "finality" of the Office action. In the previous Office action it appeared the Office was simply asking for page and line numbers for support. Applicants therefore supplied the requested information but did not brief the matter for the Office.

I. FATTY AMIDE

Written description support for "fatty amides" is found at page 22, line 13 [Paragraph 0072 of published application No. US 2002/0150692]:

> "(a) fatty acid amines, preferably having at least 6 carbon atoms, most preferably at least 10 carbon atoms and generally no greater than 30 carbon atoms, they may be primary, secondary, tertiary, diamines, amine salts, amides, ethoxylated amines,ethoxylated diamines, quaternary ammonium salts, quaternary diammonium salts, ethoxylated quaternary ammonium salts, ethoxylated amides and amine oxides. Examples of the primary, secondary and tertiary amine-type corrosion inhibitors are ARMEEN™ to (™ denotes trademark). Examples of the subsequent amine-type corrosion inhibitors are respectively DUOMEEN™, ARMAC ™/DUOMAC, ARMID™, ETHOMEEN™, ETHODUONEEN™, ARQUAD™, DUOQUAD™, ETHOQUAD™, ETHOMID™, AROMOX ™, all supplied by Akzo Chemie." (Emphasis added.)

This paragraph states "they may be ... amides ...." "They" clearly refers back to the "fatty acid amines." So the "amides" linked to the "fatty acid amines" by "they" must also be "fatty." An amide is, by definition, "a product of a reaction

between a carboxylic acid and an amine." If an amine is "fatty," its corresponding amide must also be "fatty." That is, the reaction from an amine to an amide does not destroy the compound's long hydrocarbon chain, so the corresponding amide compound is also "fatty."

Furthermore, among the various listed species of corrosion inhibitors, at least one of these exemplary compounds, ARMID™, is a "fatty amide," as is evident from the Akzo Nobel Technical Information in enclosed Exhibit A.

Accordingly, one skilled in the art would understand "amides" at page 22, line 13 to be referring to *fatty* amides, such that "fatty amides" is supported literally. And, in particular, one would understand applicants to have been in possession of the invention comprising silver plating with a composition comprising among other components, fatty amides, for solderability enhancement.

Moreover, even if the cited passage of the specification were deemed to fall short of *literal* support, it meets the standard required by Section 112. In particular, claim language is supported if the disclosure "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Lampi Corp. v. American Power Products Inc.*, 56 USPQ2d 1445, 1455 (Fed. Cir. 2000). It is not necessary that the claim language such as "fatty amides" be supported in exact terms ("*in haec verba*" or "*in ipsis verbis*"):

> [W]e are mindful that appellant's specification need not describe the claimed invention in *ipsis verbis* to comply with the written description requirement. The test is whether the originally filed specification disclosure *reasonably* conveys to a person having ordinary skill that applicant had possession of the subject matter later claimed. *In re Sorenson*, 3 USPQ2d 1462, 1463 (BPAI 1987).

The claim language under scrutiny in *In re Sorenson* included "copper complexes of imines," "binuclear copper complexes of carboxylic acids," and "a binuclear copper complex

of an aliphatic carboxylic acid or binuclear copper complex of an aryl carboxylic acid." *Sorenson*, 3 USPQ2d at 1463. The examiner in *Sorenson* acknowledged that the description in the specification contained broader expressions that encompassed the claim language at issue, including "an organic compound of copper", "copper complexes of carboxylic acids," "copper complex of an aliphatic carboxylic acid," and the "copper complex of an aryl carboxylic a[cid]. The examiner nonetheless rejected the claims for failing to satisfy the written description requirement. The Board reversed the rejection. The Board found that, although the specification did not use the exact language found in the claims, the disclosure as a whole reasonably conveyed to the skilled artisan that the applicant had possession of the claimed subject matter. *Id.* at 1463-64.

Here, a skilled artisan reading the specification's disclosure of "fatty amines," which "may be...amides," would immediately recognize that Applicants had possession of an immersion silver plating solution comprising a fatty amide additive. The written description requirement of Section 112 is satisfied.

II. OXIDANT

Written description support for "oxidant" is provided, for example, by the numerous references in the original specification to "nitric acid" as a component of the plating composition.[1] Nitric acid is a known oxidant and a known oxidant for copper:

U.S. PAT. 4,846,918, Col. 1, lns 58-64

[1]Specification page 24, line 24; and Examples 2 (page 29, line 6), 7 (page 34, line 8), and 8 (page 34, line 18). [Paragraphs 0086, 0103, 0123, and 0125 of published application No. US 2002/0150692.]

In the nitric acid etching chemistry disclosed in U.S. Pat. Nos. 4,497,687 and 4,545,850, nitric acid reacts with copper according to the relationship

$3Cu+8HNO_3 = 3Cu(NO_3)_2 +2NO+4H_2O$

with the **nitric acid serving both as an oxidant and as an anion source for the dissolved copper.**

U.S. PAT. 5,362,712; Claim 1

1. . . . to dissolve the copper mold . . . **nitric acid is** simultaneously used as said mineral acid and **said oxidizing agent** . . . .

U.S. PAT. 5,037,482; Col. 5, lns 23 ff.

The oxidizer must be of a type, and present in an amount, sufficient to provide in cooperating interaction with the surfactant, a controlled conversion of the copper surface from a substantially smooth surface to a substantially clean, substantially uniformly micro-roughened surface, so that the bonding characteristics of the copper surface are substantially increased for securely adhering a subsequently applied coating to the copper surface, without at the same time removing the copper surface itself from the underlying substrate to which it is adhered. An oxidizing agent which is too active, and/or which is used in too substantial concentrations, not only runs the risk of uncontrolled stripping of the copper surface from its underlying substrate, but more importantly has been found ineffective to produce the required micro-roughened topography on the remaining **copper surface. Results such as this have been found with compositions containing nitric acid as the oxidizer.** Even where complete stripping is avoided, the remaining copper surface is nevertheless surprisingly smooth and unacceptable for promoting adhesion of subsequently applied coatings. [Nitric acid was discussed in the context of the prior art; and the inventors preferred methane sulfonic acid over nitric acid.]

In fact, the patent from which applicants' claims were copied and with which interference is sought -- U.S. Pat. 6,200,451 -- includes this well-known oxidant nitric acid in its composition. Col. 3, ln. 64; col. 6, ln. 11.

Nitric acid in the context of these solutions is well understood to provide nitrate ions which facilitate oxidization of Cu to Cu^{+1} and/or Cu^{+2} by the most basic of chemical re-dox reactions.

In light of the state of the knowledge in the art, the specification's disclosure of "nitric acid"—a known oxidant for copper—reasonably conveys to the artisan that applicants had possession of immersion silver plating solutions comprising an oxidant. Therefore, the written description requirement of Section 112 is satisfied.

III. THE OFFICE HAS NOT MADE A *PRIMA FACIE* SHOWING

Because the written description requirement does not require *in ipsis verbis* support in the specification, the Office bears "the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims." *In re Wertheim*, 191 USPQ 90, 97 (CCPA 1976); *In re Alton*, 37 USPQ2d 1578, 1583 (Fed. Cir. 1996); MPEP 2163.04.

The *Wertheim* court found that the Patent Office did "nothing more than to argue lack of literal support." *Wertheim*, 191 USPQ at 98. The court found this inadequate:

> If lack of literal support alone were enough to support a rejection under § 112, then the statement of *In re Lukach* that "the invention claimed does not have to be described *in ipsis verbis* in order to satisfy the description requirement of § 112," is empty verbiage. *Id.* (citations omitted).

Here, the Office has not provided sufficient evidence or reasoning for concluding that the written description

requirement is not satisfied for the claim language "fatty amides" or "oxidants." More importantly, the disclosure "reasonably conveys to a person having ordinary skill that applicant had possession of the subject matter later claimed," i.e., of silver plating using compositions containing fatty amides and an oxidant to improve solderability.

Conclusion

In view of the foregoing, both "fatty amides" and "oxidant" find adequate support under Section 112 in the original specification. Applicants therefore request allowance of the pending claims and consideration of their Suggestion of Interference submitted December 21, 2004.

* Enclosed is the required fee of $120.00 for a one-month extension of time.

Respectfully submitted,

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*Enclosures

Express Mail No. EV 654634215 US

AKZO NOBEL

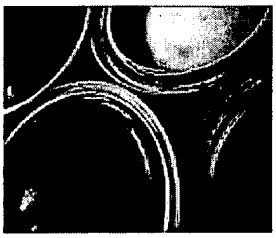
Technical Information

Akzo Nobel Surface Chemistry LLC

CATIONIC CHEMICALS FOR PIGMENTS AND INKS

Pigment Dispersion

Why use cationic chemicals?



Cationic chemicals are directed at reducing the most expensive operations in the manufacture of paints and printing inks: the wetting, dispersing and stabilizing of a pigment into a vehicle. Akzo Nobel Surface Chemistry cationic chemicals allow manufacturers to reduce costs by controlling the time and energy required. In addition, they bring a variety of other technological benefits described in this brochure and the available technical bulletins.

How is this achieved?

Our chemistry is based on derivatizing fats and oils into fatty alkyl amines and their derivatives. These chemicals possess a partially or fully positive charged (cationic) nitrogen in their structure. This feature results in an outstanding characteristic – the ability to be adsorbed on solid surfaces. They are held in place by strong chemical forces with the polar nitrogen being adsorbed on the surface and with the fatty alkyl, hydrocarbon group oriented outwards. In paint and printing ink manufacture the solid surface is usually the pigment or extender particle. The polar group is adsorbed on the surface of the pigment, and the non-polar fatty chain is oriented towards the medium. Thus a new surface, which is much more easily wetted by oil, is offered to the vehicle.

How are these chemicals used?

Cationic treatment of pigments can be accomplished either by pretreating the pigment in a water slurry or by adding the cationic agent directly to either the vehicle or the pigment -oil paste at the point of grind.

The benefits that can be realized are:

- elimination of the sweating period
- a higher grind number is reached with a reduction in grinding time
- less power consumption during grinding
- less pigment separation/settling in stored paints
- film hardness, dry-time, gloss, color, and color retention are *not* affected

Armeen® primary amines, *Duomeen*® diamines, *Triameen*® triamines, *Arquad*® quaternary ammonium salts and *Ethomeen*® ethoxylated amines are proven chemical agents for facilitating pigment dispersion, flushing and softening.

The various amine products are water-insoluble, but they can be con-verted to a water-soluble state by neutralizing with acetic acid. This procedure forms water-soluble amine acetate salts. A separate bulletin is available on converting *Armeen* amines into the

corresponding *Armac*® acetate salts. This added flexibility allows their incorporation during pigment synthesis or at the agglomerated pigment paste stage of production.

Further, amine acetates may be reacted sodium salts of fatty acids to form fatty ammonium salts of fatty acids. Among the many possible combinations, we have discovered that the dioleate salt of *Duomeen T* (tallowalkyl diamine) is particularly effective for dispersing inorganic pigments. This product is marketed as *Duomeen TDO* (Tallow diamine Di-Oleate). A more detailed brochure on *Duomeen TDO* is available on request.

Listed in the table are recommendations of Akzo Nobel Surface Chemistry products for various pigment dispersing applications.

PRODUCTS	*APPLICATIONS*
Duomeen TDO (available as solid or 80% in high flash solvent) used at 0.5 - 3.0% based on pigment	Excellent for dispersing inorganic pigments - Titanium dioxide, extenders, precipitated silica, Chrome Yellow/Orange/Green, Cadmium Red/ Yellow, Iron Blue/Black and Carbon black
Arquad 2C or 2HT Admixed with Ethomeen S 12	For hard-to-disperse organic pigments – Toluidine Red, Para Red, Red Lakes, Phthalocyanine Blue/Green
Triamine T, Triamine YT	Pretreating Diarylide Yellows
Armeen C, T or HT (as acetate salt)	General softening agent for all inorganic hydrophilic pigments
Armeens C/T/HT, Duomeen T (as acetate salts} Arquad C, Arquad 2HT	Efficient pigment flushing agents when added to aqueous phase; dewatering
Armeens C/T/HT, Duomeen T	Flushing agents when added to oil phase

PRINTING INK ADDITIVES

Product Features

Antiblocking and Adhesion Promotion – "Blocking" is the adhesion of surfaces due to vertical pressure on the surfaces, such as in stacking. This is often encountered in the printing and coating of paper and foil for books and packaging where stacking is an essential operation.

"Anti-slip" refers to adhesion of two surfaces where the pressure is applied horizontally. Printed inks exhibit poor blocking properties by their tendency to transfer to a contacting surface; poor anti-slip in an ink will manifest in pages not sliding over one another and increased smearing.

Armid®O and Armid HT fatty alkyl amides, added to inks and coatings, greatly reduce blocking and anti-slip tendencies. Both are widely approved by the FDA for incorporation into numerous compositions coming into contact with food.
Armid O, used at levels of 2% based on ink, induces anti-block and adhesion for polyamide or cyclized rubber-based inks for printing polyolefins. It is also used in solvent-based inks for promoting slip properties and in offset inks at the grinding stage to reduce emulsification during the printing process.

Rub Resistance – Armid O and Armid HT also increase the rub resistance of inks and coatings. Armid HT is used at 0.2% in newspaper printing inks to prevent rub-off.

Over-Printing -- Armid HT facilitates over-printing and wet-printing of papers. This is important when a clear coating, such as lacquer or varnish, is desired over a printed surface. This applies where a second ink, rather than a coating, is used to over-print.

Web-Offset Printing – The poor emulsification and water repellency characteris-tics of Armid O and Duomeen TDO have led to their inclusion in web-offset inks. Used at the 1% level, they reduce the tendency of the ink to emulsify during the printing process.

Anti-Wear Additives – High speed printing often leads to severe abrasion between the doctor blade and cylinder, especially when hard pigments are used. This abrasion can be appreciable reduced by the addition of Ethomeen C/25 or Ethomid O/17 into the ink. The ink system and its tendency to show fattening with storage govern the choice of chemical.

Anti-Static Coatings – The use of polymer film for packaging necessitates the use of inks with similar anti-static characteristics as the polymer to prevent dust adherence. Incorporation of Arquad 18-50 or Ethoquad® C/12 into the ink will give anti-static properties over a prolonged period. Ethoquad ethoxylated quaternary ammonium salts facilitate the printing of inks on polyolefin surfaces.

The following table provides a quick-reference summary of printing applications:

PRODUCT	APPLICATION
Armid O	Antiblocking Adhesion promotion Web-offset ink additive for reducing emulsification
Armid HT	Antiblocking Adhesion promotion Increased rub resistance Facilitates over-printing
Duomeen TDO	Web-offset ink additive for reducing emulsification
Ethomeen C/25 ***Ethomid O/17***	Anti-wear additives in high speed prin ng
Arquad 18-50 ***Ethoquad C/12***	Anti-static coatings for shrink-wrap applications

AVAILABILITY AND SAMPLES

Samples of Akzo Nobel Surface Chemistry LLC products are available on request. To obtain samples, technical service, prices or literature contact:

In the US: Toll-Free Customer Service : 800-906-9977 (Chicago)

In Canada: Customer Service: 905-273-5959

Internet: Samples and drum quantities may also be ordered at our website, **http://surface.akzonobelusa.com**

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